

layer of one of said two electrodes and then bringing said free face coated with a film of adhesive into contact with said free face of said porous layer of said other electrode to form an electrochemical couple, and wherein said adhesive is a paste constituted by said electrochemically active material of said porous layer of said second electrode, a polymer and a solvent which dissolves said polymer.

C4
cont'd
Sub 2
27. The process claimed in claim 26 wherein said solvent is selected from water and N-methylpyrrolidone.

21/28. The process claimed in claim 19/26 wherein said electrochemical couple formed is rolled then dried for 10 minutes at a temperature of about 80°C.--

REMARKS

Claims 1-21 are all the claims pending in the application. By way of this Amendment, Applicants have amended claims 1-21 and added new claims 22-28. In particular, to more clearly recite the invention, Applicants have amended claims 1-21 to be apparatus claims and added new method claims 22 and 23. In addition, Applicants have added claims 24-28 which respectively correspond to 1+2+3, 1+2+13, 1+2+14, 16/14 and 17/14, indicated as being allowable.

Claims 7-12 and 15 have been rejected under § 112 (second paragraph) as being indefinite. Applicants have amended the claims to overcome this rejection.

Applicants note with appreciation that the Examiner has indicated that dependent claims 3, 13, 14, 16 and 17 contain allowable subject matter. As noted above, these claims have been rewritten as claims 24-28. Claims 1, 2, 6, 7, 10, 11, 18 and 20 have been rejected under § 102(b) as being anticipated by Dasgupta et al. (U.S. Patent No. 5,437,692). In addition, claims 1, 2, 4, 5, 19 and 21 have been rejected under § 103 based on Dasgupta et al. Applicants respectfully traverse these rejections.

Applicants submit that claim 1 pending patentably distinguishes over Dasgupta et al. In particular, claim 1 recites a first electrode which comprises a first layer containing an electrochemically active material and a porous second layer of a polymeric material. The claim also recites a second electrode which comprises a porous layer containing an electrochemically active material. Claim 1 requires that the electrodes be assembled using an adhesive which is disposed between the porous second layer of the first electrode and the porous layer of the second electrode. Thus, according to the invention, the porous layer of the first electrode functions as an electrical separator to prevent contact between the active material of the first electrode and that of the second electrode. Applicants submit that Dasgupta et al., does not teach or suggest this aspect of the invention.

Referring to the face of the Dasgupta et al. patent, reference numerals 12 and 14 combine to form the negative electrodes and reference numerals 13 and 15 combine to form the positive electrode. The negative electrode includes a polymer layer 12 with carbon imbedded therein and a second layer 14 (the active layer) which includes carbon. The positive electrode also includes a polymer layer 13 with carbon and a second layer 15 (the active layer which includes fine particles of vanadium oxide, manganese oxide, cobalt oxide, nickel oxide or silver vanadate).

The positive and negative electrodes are secured to one another by placing a solid polymer electrolyte 16 between the positive and negative electrodes and adhering the polymer electrolyte to the active layers 14, 15 of the electrodes using an adhesive. According to a second embodiment, a microporous polymer laminate separator, which has been impregnated with an organic liquid electrolyte containing a lithium compound, is placed between the electrodes and adhered using an adhesive.

Based on the foregoing, it is clear that Dasgupta et al. does not teach or suggest a first electrode which includes an active layer and a porous second layer which is directly bonded to the porous layer (containing an electrochemically active material) of the second electrode. Instead, Dasgupta et al. discloses providing either a solid polymer electrolyte or a microporous polymer laminate separator between the positive and negative electrodes, which is completely contrary to the present invention.

Dependent claims rejected by the Examiner should be allowable based on the dependency from claim 1. In addition, many of the dependent claims appear to contain subject matter which is not taught or suggested in the cited art including, but not limited to, claims 2 and 6.

In addition, Applicants respectfully submit that method claims 22 and 23, which substantially mirrors claims 1 and 2, respectively, are likewise allowable. Finally, new claims 24-28, are also deemed to be allowable.


In view of the above, reconsideration and allowance of this application are now believed to be in order, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT
U.S. Appln. No. 08/977,052

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,

SUGHRUE, MION, ZINN,
MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, D.C. 20037-3213
Telephone: (202) 293-7060
Facsimile: (202) 293-7860


Brian W. Hannon
Registration No. 32,778

Date: July 26, 1999